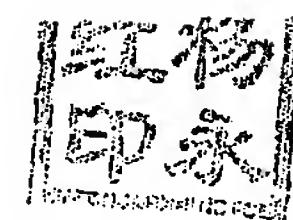


Application No. 86-10-62019451
Form PCT/IPEA/409 (cover sheet) (April 2005)

Telephone No. 86-10-62085388

CHONGMING, JIANGTUN, JIANGHONG



INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/CN2005/000104

Box No. I Basis of the report

1. With regard to the language, this report is based on:

- the international application in the language in which it was filed
 a translation of the international application into _____, which is the language of a
 translation furnished for the purposes of:
 international search (Rules 12.3(a) and 23.1(b))
 publication of the international application (Rule 12.4(a))
 international preliminary examination (Rules 55.2(a) and/or 55.3(a))

2. With regard to the elements of the international application, this report is based on (*replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report*):

- the international application as originally filed/furnished

- the description:

| | | |
|-------|-------|-------------------------------------|
| pages | _____ | as originally filed/furnished |
| pages | _____ | received by this Authority on _____ |
| pages | _____ | received by this Authority on _____ |

- the claims:

| | | |
|-------|-------|---|
| pages | _____ | as originally filed/furnished |
| pages | _____ | as amended (together with any statement) under Article 19 |
| pages | _____ | received by this Authority on _____ |
| pages | _____ | received by this Authority on _____ |

- the drawings:

| | | |
|-------|-------|-------------------------------------|
| pages | _____ | as originally filed/furnished |
| pages | _____ | received by this Authority on _____ |
| pages | _____ | received by this Authority on _____ |

- a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing.

3. The amendments have resulted in the cancellation of:

- the description, pages _____
- the claims, Nos. _____
- the drawings, sheets/figs _____
- the sequence listing (*specify*): _____
- any table(s) related to sequence listing (*specify*): _____

4. This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- the description, pages _____
- the claims, Nos. _____
- the drawings, sheets/figs _____
- the sequence listing (*specify*): _____
- any table(s) related to sequence listing (*specify*): _____

* If item 4 applies, some or all of those sheets may be marked "superseded."

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITYInternational application No.
PCT/CN2005/000104**Box No. II Priority**

1. This report has been established as if no priority had been claimed due to the failure to furnish within the prescribed time limit the requested:
 - copy of the earlier application whose priority has been claimed (Rule 66.7(a)).
 - translation of the earlier application whose priority has been claimed (Rule 66.7(b)).
2. This report has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rule 64.1). Thus for the purposes of this report, the international filing date indicated above is considered to be the relevant date.
3. Additional observations, if necessary:
The priority claim has been found valid though examination.

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/CN2005/000104

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement:

| | | |
|-------------------------------|--------------|-----|
| Novelty (N) | Claims 1-22 | YES |
| | Claims _____ | NO |
| Inventive step (IS) | Claims 1-22 | YES |
| | Claims _____ | NO |
| Industrial applicability (IA) | Claims 1-22 | YES |
| | Claims _____ | NO |

2. Citations and explanations (Rule 70.7)

1. claims 1 and 9 meet the criteria set out in PCT Article 33(2)-(3).

The documents cited in the international search report as prior art do not disclose the feature that the vanes on one side of the impeller and the vanes on the another side of the impeller are staggered each other along periphery, and do not give any suggestions about using the aforesaid feature to obtain the bi-negative pressure turbine of the invention. Therefore, to the person skilled in the relative art, the bi-negative pressure turbine claimed in claim 1 of the invention is not obvious. The high turbulence mill claimed in the claim 9 has the above bi-negative pressure turbine, therefore it is not obvious.

2. Dependent claims 2-8 and 10-22 cite the claim 1 and 9 respectively, therefore they meet the criteria set out in PCT Article 33(2)-(3) obviously.

3. Claims 1-22 have industrial applicability and meet the criteria set out in PCT Article 33(4).

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/CN2005/000104

Box No. VI Certain documents cited

1. Certain published documents (Rule 70.10)

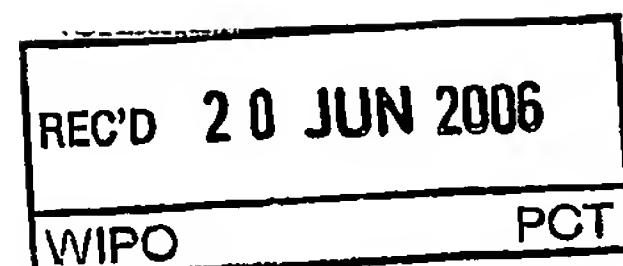
| Application No. Patent No. | Publication date (day/month/year) | Filing date (day/month/year) | Priority date (valid claim) (day/month/year) |
|-------------------------------|--------------------------------------|---------------------------------|---|
| CN1562489A | 12/01/2005 | 15/04/2004 | |

2. Non-written disclosures (Rule 70.9)

| Kind of non-written disclosure | Date of non-written disclosure (day/month/year) | Date of written disclosure referring to non-written disclosure (day/month/year) |
|--------------------------------|--|---|
| | | |

专利合作条约

PCT



专利性国际初步报告

(PCT 第II章)

(PCT 36 和细则 70)

| | | |
|--|---|--|
| 申请人或代理人的档案号 PCT042166M | 关于后续行为 参见 PCT/IPEA/416 表 | |
| 国际申请号 PCT/CN2005/000104 | 国际申请日(日/月/年) 24.1月 2005 (24.01.2005) | 优先权日(日/月/年) 23.3月 2004 (23.03.2004) |
| 国际专利分类(IPC)或者国家分类和 IPC 两种分类 B02C19/20(2006.01)i | | |
| 申请人 杨富茂 等 | | |

1. 本报告是国际初步审查单位根据条约 35 做出的国际初步审查报告，并依照条约 36 将其传送给申请人。
2. 本报告共计 5 页，包括扉页。
3. 本报告还有附件，
 a. (传送给国际局和申请人) 共计 ____ 页，包含
 修改后的并且作为本报告基础的说明书修改页、权利要求书修改页和/或附图修改页，和/或对
 本国际初步审查单位所做出的更正页(见 PCT 细则 70.16 和行政规程 607)。
 国际初步审查单位认为修改超出原始公开范围的取代页，参见第 1 栏第 4 项和补充栏。
 b. (传送给国际局) 共计 (指明电子载体的类型和数量) ____，包含有在与序列表有关的补充栏中
 指明的电子形式的序列表和/或与其相关的表格。(行政规程 802)
4. 本报告包括关于下列各项的内容：
- I 报告的基础
 II 优先权
 III 不做出关于新颖性、创造性和工业实用性的意见
 IV 缺乏发明的单一性
 V 按条约 35(2) 关于新颖性、创造性和工业实用性的理由；支持这种意见的引证和解释
 VI 引用的某些文件
 VII 国际申请中的某些缺陷
 VIII 对国际申请的某些意见

| | |
|--|--------------------------------------|
| 提交要求书的日期 13.1月 2006 (13.01.2006) | 完成本报告的日期 26.5月 2006 (26.05.2006) |
| 中华人民共和国国家知识产权局 IPEA/CN 中国北京市海淀区西土城路 6 号(100088) 传真号：(86-10) 62019451 | 受权官员 杨永红 电话号码 (86-10)-62085388 |

专利性国际初步报告

国际申请号

PCT/CN2005/000104

I. 报告的基础

1. 关于语言, 本报告将基于:

- 申请提出时使用的语言。
- 该申请的_____语言译文, 提供该种语言的译文是
 为了国际检索而提交的译文所使用的语言(细则 12.3 和 23.1 (b))。
 为了国际申请的公布而提交的译文所使用的语言(细则 12.4)。
 为了国际初步审查而提交的译文所使用的语言(细则 55.2 和/或 55.3)。

2. 关于国际申请中各个部分, 本报告基于(申请人为答复受理局根据条约 14 所发通知而提交的替换页, 在本报告中视为“原始提交”的文件, 不作为本报告的附件)

- 原始提交的国际申请。

- 说明书, 第_____页, 原始提交的,
 第_____页*, _____初审单位收到的,
 第_____页*, _____初审单位收到的。
- 权利要求, 第_____页, 原始提交的,
 第_____页*, 按条约 19 条修改的(附有说明),
 第_____页*, _____初审单位收到的,
 第_____页*, _____初审单位收到的。
- 附图, 第_____页, 原始提交的。
 第_____页*, _____初审单位收到的,
 第_____页*, _____初审单位收到的。
- 序列表和/或相关表格——参见与序列表有关的补充栏。

3. 修改导致以下内容的删除:

- 说明书, 第_____页
- 权利要求, 第_____项
- 附图, 第_____页, 图_____
- 序列表(具体说明) _____
- 与序列表相关的表格(具体说明) _____

4. 由于本报告附件的(某些)修改, 如下所列, 被认为超出了原始公开的范围, 如补充栏所示, 因此本报告是按照没有修改的情况做出的(细则 70.2(c))。

- 说明书, 第_____页
- 权利要求, 第_____项
- 附图, 第_____页, 图_____
- 序列表(具体说明) _____
- 与序列表相关的表格(具体说明) _____

*如果第 4 项适用, 一些或全部的文件页可能做出“被取代”标记。

II. 优先权

1. 由于没有在规定的期限内提交所需要的下列文件，本书面意见是按照没有要求任何优先权的情况作出的：
 被要求优先权的在先申请的副本（细则 66.7 (a)）。
 被要求优先权的在先申请的译文（细则 66.7 (b)）。
2. 由于发现所要求的优先权是无效的，因此本报告是按照如同没有要求任何优先权的情况作出的（细则 64.1）。因而，上面指明的国际申请日被认为是相关日。
3. 补充意见（如必要）：
经查明，被要求的优先权是有效的。

专利性国际初步报告

国际申请号

PCT/CN2005/000104

V. 按条约 35(2) 关于新颖性、创造性或工业实用性的意见；支持这种理由的引证和解释

1. 意见

新颖性(N)

权利要求 1-22

是

权利要求 _____

否

创造性(IS)

权利要求 1-22

是

权利要求 _____

否

工业实用性(IA)

权利要求 1-22

是

权利要求 _____

否

2. 引证和解释（细则 70.7）

1. 权利要求 1, 9 符合 PCT 条约 33 条 (2) - (3) 的要求。

国际检索报告中作为现有技术的引用文件中均没有公开本申请权利要求 1 中的特征“叶盘一个侧面的叶片与位于该叶盘另一侧面的叶片沿周向彼此错开”，也没有给出任何利用上述特征得到本发明权利要求 1 的双负压涡轮的启示，因此，对所属领域技术人员来说，本发明权利要求 1 要求保护的双负压涡轮是非显而易见的。权利要求 9 要求保护的高度湍流磨具有上述双负压涡轮，因此显然也是非显而易见的。

2. 从属权利要求 2-8, 10-22 分别引用了权利要求 1 和 9，因此显然符合 PCT 条约 33 条 (2) - (3) 的要求。

3. 权利要求 1-22 都可以进行工业实施，因此符合 PCT 条约 33 条 (4) 的要求。

专利性国际初步报告

国际申请号

PCT/CN2005/000104

VI. 某些引用文件

1. 某些已公布的文件(细则 70.10)

| 申请号 专利号 | 公布日 (日/月/年) | 申请日 (日/月/年) | 优先权日(有效的) (日/月/年) |
|------------|----------------|----------------|----------------------|
| CN1562489A | 12/01/2005 | 15/04/2004 | |

2. 非书面公开(细则 70.9)

| 非书面公开的种类 | 非书面公开的日期 (日/月/年) | 述及非书面公开的 书面公开的日期 (日/月/年) |
|----------|---------------------|--------------------------------|
| | | |

专利合作条约

发信人：国际检索单位

收信人：100101

中国北京市朝阳区慧忠路 5 号远大中心 B 座 18 层

隆天国际知识产权代理有限公司

王玉双 王艳江

REC'D 06 JUN 2005

PCT

PCT

国际检索单位书面意见

(PCT 细则 43 之二 .1)

发文日(日/月/年)

26.5月2005 (26.05.2005)

申请人或代理人的档案号

PCT042166M

后续行为

见下面第 2 段

国际申请号

PCT/CN2005/000104

国际申请日(日/月/年)

24.1月2005 (24.01.2005)

优先权日(日/月/年)

23.3月2004(23.03.2004)

国际专利分类(IPC)或国家分类和 IPC 两种分类

IPC⁷: B02C19/20

申请人

杨富茂 等

1. 本意见包括关于下列各项的内容：

- I 意见的基础
- II 优先权
- III 不作出关于新颖性、创造性和工业实用性的意见
- IV 缺乏发明的单一性
- V 按照细则 43 之二.1(a)(i) 关于新颖性、创造性和工业实用性的理由；支持这种意见的引证和解释
- VI 引用的某些文件
- VII 国际申请中的某些缺陷
- VIII 对国际申请的某些意见

2. 后续行为

如果提出初步审查要求书，本次意见将被视为国际初步审查单位(IPEA)的一次书面意见（如果申请人选择的国际初步审查单位非本机构，而且所选国际初步审查单位已按照细则 66.1 之二(b)通知国际局将不考虑国际检索单位的书面意见时例外）。

如本书面意见被视为国际初步审查单位的书面意见，则请申请人在自 PCT/ISA/220 发文之日起 3 个月或自优先权日起 22 个月内（以后届满者为准）向国际初步审查单位提交书面答复并提交修改（如适用），

3. 详细信息请见 PCT/ISA/220 表格的说明

中华人民共和国国家知识产权局
(ISA/CN)
中国北京市海淀区蓟门桥西土城路 6 号 100088
传真号: (86-10)62019451

完成本意见的日期

06.4 月 2005(06.04.2005)

受权官员

杨永红

电话号码: (86-10)62085388

I. 意见的基础

1、关于语言，制定书面意见基于：

- 申请提出时使用的语言。
- 该申请的_____语言译文，为了国际检索的目的提供该种语言的译文(细则 12.3(a)和 23.1(b))。

2、关于国际申请中所公开的核苷酸和/或氨基酸序列表和对所称发明的必要性，该书面意见是在下列基础上制定的：

a. 材料的类型

- 序列表
- 与序列表相关的表格

b. 材料的形式

- 纸件形式
- 电子形式

c. 提交/提供时间

- 包括于已提交的国际申请。
- 以电子形式与国际申请一起提交。
- 为检索之用随后提交本国际检索单位。

3、 另外，在提交/提供了多个核苷酸和/或氨基酸序列表和/或与其相关的表格的版本或副本的情况下，提供了关于后提交的或附加的副本与已提交的国际申请中的序列表相同或未超出国际申请中序列表范围(如适用)的声明。

4. 补充意见

国际检索单位书面意见

国际申请号

PCT/CN2005/000104

V. 按细则 43 之二. 1 关于新颖性、创造性或工业实用性的理由；支持这种意见的引证和解释

1. 意见

新颖性(N) 权利要求 1-22 是
权利要求 否

创造性(1S) 权利要求 1-22 是
权利要求 否

工业实用性(1A) 权利要求 1-22 是
权利要求 否

2. 引证和解释

权利要求 1-22 符合 PCT 条约 33 条 (2) — (4) 的要求。

现有技术中没有公开本发明要求保护的双负压涡轮和高度湍流磨，而且对本领域的技术人员来说，没有任何启示可以由现有技术容易地得到本发明的上述装置。

Translation

PATENT COOPERATION TREATY

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:

LUNG TIN INTERNATIONAL INTELLECTUAL PROPERTY
AGENT LTD.

18th Floor, Tower B, Grand Place, No.5 Huizhong Road,
Chaoyang District Beijing 100101 China

REC'D 06 JUN 2005

WIPO

PCT

PCT

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43 bis.1)

Date of mailing

(day/month/year)

26 · MAY 2005 (26 · 05 · 2005)

FOR FURTHER ACTION

see paragraph 2 below

Applicant's or agent's file reference

PCT042166M

International application No.

PCT/CN2005/000104

International filing date (day/month/year)

24. Jan. 2005 (24.01.2005)

Priority date (day/month/year)

23.Mar.2004(23.03.2004)

International Patent Classification (IPC) or both national classification and IPC

IPC⁷: B02C19/20

Applicant

YANG,Fumao et al

1. This opinion contains indications relating to the following items:

- Box No. I Basis of the opinion
- Box No. II Priority
- Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- Box No. IV Lack of unity of invention
- Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- Box No. VI Certain documents cited
- Box No. VII Certain defects in the international application
- Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

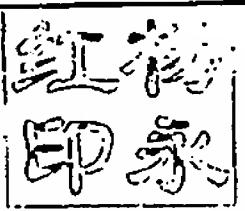
3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/CN
The State Intellectual Property Office, the
P.R.China 6 Xitucheng Rd., Jimen Bridge,
Haidian District, Beijing, China 100088
Facsimile No. 86-10-62019451

Date of completion of this opinion
06.Apr.2005(06.04.2005)

Authorized officer

YANG,Yonghong



Telephone No.86-10-62085388

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/CN2005/000104

Box No. I Basis of the opinion

1. With regard to the language, this opinion has been established on the basis of:

the international application in the language in which it was filed
 a translation of the international application into _____, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

2. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

a. type of material

a sequence listing
 table(s) related to the sequence listing

b. format of material

on paper
 in electronic form

c. time of filing/furnishing

contained in the international application as filed
 filed together with the international application in electronic form
 furnished subsequently to this Authority for the purposes of search

3. In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments:

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/CN2005/000104

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statement

1. Statement:

Novelty (N)

Claims 1-22 YES

Claims _____ NO

Inventive step (IS)

Claims 1-22 YES

Claims _____ NO

Industrial applicability (IA)

Claims 1-22 YES

Claims _____ NO

2. Citations and explanations

claims 1-22 meet the criteria set out in PCT Article 33(2)-(4).

The bi-negative pressure turbine and the high turbulence mill claimed in the invention are not disclosed in prior art, and there are not any suggestions to the person who is skilled in the relative art to easily obtain the said devices.